CASE NARRATIVE

This case narrative encompasses samples received on August 31, 2010 by Friedman & Bruya, Inc. from the Landau Associates 3Q10 Stormwater Sampling, F&BI 008368 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Landau Associates
008368-01	CB331707
008368-02	CB330001

All quality control requirements were acceptable.

Date of Report: 09/09/10
Date Received: 08/31/10
Project: 3Q10 Stormwater Sampling, F&BI 008368
Date Extracted: 09/02/10
Date Analyzed: 09/03/10 and 09/07/10

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 51-134)
CB331707 008368-01	990 x	1,900	95
CB330001 008368-02	780 x	1,300	99
Method Blank 00-1399 MB	<50	<250	76

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/09/10
Date Received: 08/31/10
Project: 3Q10 Stormwater Sampling, F&BI 008368
Date Analyzed: 09/01/10

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TURBIDITY USING METHOD SM2130B

Results Reported as NTU

Sample ID Laboratory ID	Date Sampled	Time Sampled	Turbidity
CB331707 008368-01	08/31/10	13:10	23.1
CB330001 008368-02	08/31/10	13:30	15.3
Method Blank			<0.5

Analysis For Total Metals By EPA Method 200.8

Client ID:	CB331707	Client:	Landau Associates
Date Received:	08/31/10	Project:	3Q10 Stormwater Sampling, F&BI 008368
Date Extracted:	09/01/10	Lab ID:	008368-01
Date Analyzed:	09/01/10	Data File:	008368-01.055
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	111	60	125
Holmium	110	60	125

Analyte:	Concentration ug/L (ppb)
Copper	399
Zinc	1,870
Lead	6.52

Analysis For Total Metals By EPA Method 200.8

Client ID:	CB330001	Client:	Landau Associates
Date Received:	08/31/10	Project:	3Q10 Stormwater Sampling, F&BI 008368
Date Extracted:	09/01/10	Lab ID:	008368-02
Date Analyzed:	09/01/10	Data File:	008368-02.056
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	109	60	125
Holmium	112	60	125

Analyte:	Concentration ug/L (ppb)
Copper	128
Zinc	186
Lead	16.3

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Landau Associates
Date Received:	NA	Project:	3Q10 Stormwater Sampling, F&BI 008368
Date Extracted:	09/01/10	Lab ID:	I0-473 mb
Date Analyzed:	09/01/10	Data File:	I0-473 mb.048
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	98	60	125
Holmium	101	60	125

Analyte:	Concentration ug/L (ppb)
Copper	<1
Zinc	<1
Lead	<1

Date of Report: 09/09/10
Date Received: 08/31/10
Project: 3Q10 Stormwater Sampling, F&BI 008368

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	111	113	58-134	2

Date of Report: 09/09/10
Date Received: 08/31/10
Project: 3Q10 Stormwater Sampling, F&BI 008368

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TURBIDITY USING METHOD SM2130B

Laboratory Code: 008365-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Turbidity	NTU	1.4	1.4	0	0-20

Date of Report: 09/09/10
Date Received: 08/31/10
Project: 3Q10 Stormwater Sampling, F&BI 008368

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 008365-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Copper	ug/L (ppb)	20	63.1	107 b	99 b	50-144	8 b
Zinc	ug/L (ppb)	50	68.8	102 b	99 b	46-148	3 b
Lead	ug/L (ppb)	10	1.01	96	96	76-125	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Copper	ug/L (ppb)	20	102	66-134
Zinc	ug/L (ppb)	50	107	57-135
Lead	ug/L (ppb)	10	101	67-135

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

AKC-0004798

M-06017

ME 08/31/10

AI5

LANDAU ASSOCIATES

☒ Seattle/Edmonds (425) 778-0907
☐ Tacoma (253) 926-2493
☐ Spokane (509) 327-9737
☐ Portland (503) 542-1080
☐ _____

008368

Date 8/31/10

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Chain-of-Custody Record

Project Name Alaska Copper Works Project No. 1198001.00.011

Project Location/Event Seattle, WA/3Q10 Stormwater Sampling

Sampler's Name Gary Huitsing / Rosemary Trimmer

Project Contact Joe Kalmar (LAI) / Gerald Thompson (ACW)

Send Results To Joe Kalmar / Rosemary Trimmer (LAI)

Testing Parameters

Turnaround Time
☒ Standard
☐ Accelerated
☐

Lab ID	Sample I.D.	Date	Time	Matrix	No. of Containers	Total Zinc (EPA 200.8)	Total Copper (EPA 200.8)	Total Lead (EPA 200.8)	TPH (NWTPH-Dx)	Turbidity (EPA 180.1)
OT A.C	CB331707	8/31/10	13:10	H2O	3	X	X	X	X	X
OT A.C	CB330001	↓	13:30	↓	3	X	X	X	X	X

Observations/Comments

X Allow water samples to settle, collect aliquot from clear portion

X NWTPH-Dx - run acid wash/silica gel cleanup

___ run samples standardized to _____ product

___ Analyze for EPH if no specific product identified

VOC/BTEX/VPH (soil):
___ non-preserved
___ preserved w/methanol
___ preserved w/sodium bisulfate

___ Freeze upon receipt

___ Dissolved metal water samples field filtered

Other _____

Samples ~~received~~ at 9 °C

Special Shipment/Handling or Storage Requirements ICED

Method of Shipment drop off at lab

Relinquished by	Received by	Relinquished by	Received by
Signature	Signature	Signature	Signature
Printed Name Gary Huitsing	Printed Name Nhan Phan	Printed Name	Printed Name
Company Landau Associates	Company FedEx	Company	Company
Date 8/31/10 Time 3:00 PM	Date 8/31/10 Time 1505	Date _____ Time _____	Date _____ Time _____

WHITE COPY - Project File YELLOW COPY - Laboratory PINK COPY - Client Representative Rev 6/09

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Charlene Morrow, M.S.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
FAX: (206) 283-5044
e-mail: fbi@isomedia.com

September 9, 2010

Joe Kalmar, Project Manager
Landau Associates
130 2nd Ave. S.
Edmonds, WA 98020

Dear Mr. Kalmar:

Included are the results from the testing of material submitted on August 31, 2010 from the 3Q10 Stormwater Sampling, F&BI 008368 project. There are 10 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Gerald Thompson
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